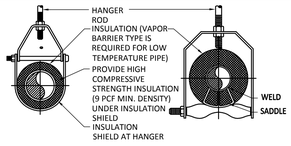
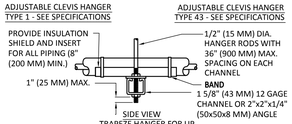
PIPING HANGER DETAIL — 8



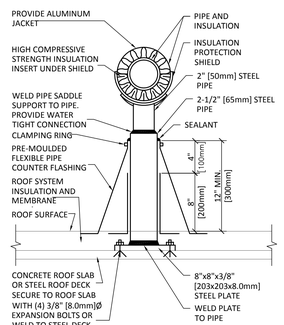


MAXIMUM PIPE/TUBING SUPPORT SPACING												
NOM. SIZE	IN. (MM)	THRU 3/4 (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (65)	3 (75)	4 (100)	5 (125)
PIPE	FT. (M)	7 (2.1)	7 (2.1)	7 (2.1)	8 (2.4)	9 (2.7)	10 (3.0)	11 (3.4)	12 (3.7)	14 (4.3)	16 (4.9)
TUBING	FT. (M)	4 FT (1.2)	5 FT (1.5)	6 (1.8)	7 (2.1)	8 (2.4)	9 (2.4)	9 (2.7)	10 (3.0)	12 (3.7)	13 (4.0)
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.												

MAXIMUM PIPE/TUBING SUPPORT SPACING												
NOM. SIZE	IN. (MM)	THRU 3/4 (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (65)	3 (75)	4 (100)	5 (125)	6 (150)	8 (200)
PIPE	FT. (M)	7 (2.1)	7 (2.1)	7 (2.1)	8 (2.4)	9 (2.7)	10 (3.0)	11 (3.4)	12 (3.7)	14 (4.3)	16 (4.9)	19 (5.8)
TUBING	FT. (M)	5 FT (1.5)	5 FT (1.5)	6 (1.8)	7 (2.1)	8 (2.4)	9 (2.7)	9 (2.7)	10 (3.0)	12 (3.7)	13 (4.0)	15 (4.6)
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.												

SCALE: NONE

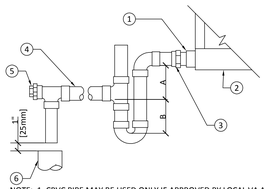
PIPING SUPPORT DETAIL - ROOF — 9



NOTES:
1. COORDINATE PIPING SUPPORT SYSTEM WITH EXISTING ROOFING SYSTEM PROVIDER FOR WARRANTY AND REPAIR.

AHU DRAIN TRAP DETAIL — 10

1. DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN. PIPING SHALL BE RIGID COPPER TYPE L OR TYPE M UNLESS NOTE 1 IS MET
2. DRAIN PAN
3. DIELECTRIC FITTING
4. PITCH DOWN TOWARD DRAIN
5. CLEAN OUT
6. FLOOR SINK



NOTE: 1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

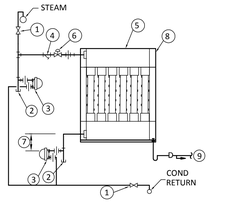
UNIT TYPE	A	B
DRAW THRU	2" [50mm] PLUS X	X
BLOW THRU	1" [25mm] MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

SCALE: NONE

HUMIDIFIER PIPING CONNECTIONS — 11

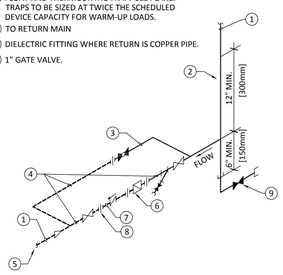
1. SHUTOFF VALVE
2. DIRT LEG
3. F&T TRAP
4. STRAINER
5. STEAM HEADER ASSEMBLY
6. CONTROL VALVE.
7. 8 INCH MINIMUM DISTANCE.
8. SUPPLY AIR DUCT OR AHU CASING
9. HUMIDIFIER DRAIN.



SCALE: NONE
NOTE:
1. WHERE HUMIDIFIERS ARE UTILIZED IN THE AIR HANDLING UNIT, PROVIDE ADEQUATE DISTANCE FOR FOR INSTALLATION OF TRAPS WITHIN CABINET WITH REQUIRED DROPS INDICATED.

FLOAT & THERMOSTATIC TRAP — 12

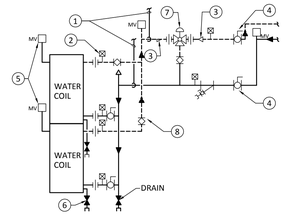
1. SCHEDULE 80 STEEL PIPE
2. DRIP LEG OR EQUIPMENT CONNECTION. MAKE THE SAME SIZE AS THE SUPPLY MAIN OR EQUIPMENT CONNECTION. SEE NOTE 1.
3. BYPASS-INSTALL IN HORIZONTAL PLANE LEVEL WITH TRAP OR IN VERTICAL PLANE & BELOW TRAP. PROVIDE BYPASS PIPING FOR ALL TRAPS 1" AND LARGER.
4. PIPE SIZE SHALL BE SAME SIZE AS TRAP.
5. SEE DRAWINGS FOR PIPE SIZES
6. FLOAT AND THERMOSTATIC TRAP. SEE PLANS. TRAPS TO BE SIZED AT TWICE THE SCHEDULED DEVICE CAPACITY FOR WARM-UP LOADS.
7. TO RETURN MAIN
8. DIELECTRIC FITTING WHERE RETURN IS COPPER PIPE.
9. 1" GATE VALVE.



NOTE:
1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

CHILLED WATER COIL DETAIL — 13

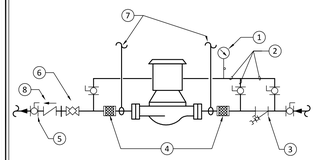
1. PIPE HANGER SHALL SUPPORT PIPING INDEPENDENT OF COIL (TYP.)
2. TEST PLUG (TYP.)
3. REDUCER, IF REQUIRED.
4. SHUT OFF VALVE (TYP.)
5. AIR VENT WHEN COIL IS NOT SELF-VENTING
6. DRAIN WHEN COIL IS NOT SELF DRAINING.
7. CONTROL VALVE, COORDINATE SIGNAL TYPE WITH DDC CONTROLS.
8. BALANCING DEVICE (TYP.)



NOTE:
1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]Ø PIPE & SMALLER. TYPE "H-P" FOR 5" [125mm]Ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

HOT WATER IN-LINE PUMPS — 14

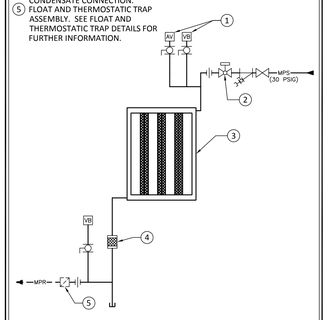
1. PRESSURE GAUGE
2. ½" [15 mm] PIPING
3. STRAINER
4. FLEXIBLE CONNECTION
5. BALL OR BUTTERFLY VALVE (TYP.)
6. BALANCING DEVICE BY PUMP MANUFACTURER.
7. PIPE HANGERS - PROVIDE DOUBLE DEFLECTION NEOPRENE (TYPE HN) FOR FIRST TWO ON EACH SIDE OF PUMP (SEE NOTE NO. 1) BY PUMP MANUFACTURER.
8. CHECK VALVE.



NOTES:
1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

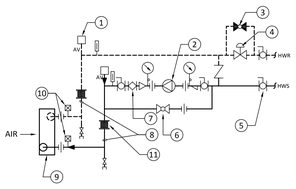
INTEGRAL FACE AND BYPASS — 15

1. VACUUM BREAKER VENTED TO ATMOSPHERE TYPICAL ON BOTH THE STEAM SUPPLY AND THE CONDENSATE LINES. AIR VENT ON STEAM SUPPLY.
2. MODULATING CONTROL VALVE
3. INTEGRAL FACE AND BYPASS DAMPER
4. FLEXIBLE CONNECTOR INSTALLED PARALLEL TO COIL HEADER AND AS CLOSE AS POSSIBLE TO COIL CONDENSATE CONNECTION.
5. FLOAT AND THERMOSTATIC TRAP ASSEMBLY. SEE FLOAT AND THERMOSTATIC TRAP DETAILS FOR FURTHER INFORMATION.



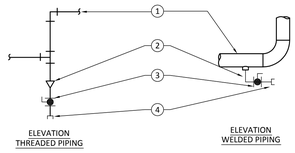
PREHEAT COIL (HOT WATER) — 16

1. AUTO. AIR VENT TO DRAIN, TYP
2. INLINE PUMP - SEE PUMP DETAIL FOR FURTHER INFORMATION.
3. MANUAL BYPASS VALVE
4. MODULATING CONTROL VALVE
5. SHUTOFF VALVE
6. MANUAL BYPASS VALVE
7. BALANCING DEVICE
8. FULL SIZE CONNECTIONS TO ALL COIL HEADER TAPPINGS
9. PREHEAT COIL
10. TEST PLUG (TYP.)
11. FLEXIBLE CONNECTOR (TYP.)



DRAIN VALVE CONNECTION DETAILS — 17

1. TYPICAL WATER PIPING
2. REDUCER, IF REQUIRED
3. ¾" [20mm] BALL VALVE
4. ADAPTER TO ¾" [20 mm] HOSE THREAD-PROVIDE HOSE CAP NUT

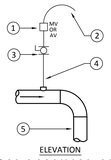


TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

AIR VENT VALVE DETAILS — 18

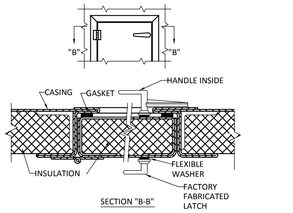
1. AIR VENT
2. ¼" [8 mm] COPPER TUBING
3. ½" [15 mm] BALL VALVE
4. ½" [15 mm] x 4" [100 mm] NIPPLE
5. WATER PIPING



TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

ACCESS PANEL AND DOOR DETAIL — 19

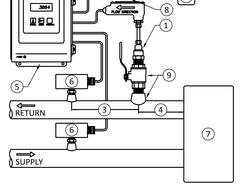


ACCESS DOOR

NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15.

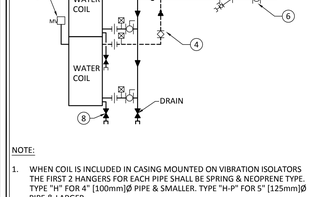
BTU METER — 20

1. FLOW METER
2. BUILDING AUTOMATION SYSTEM CONTROL MODULE IS PROVIDED WITH A 4-20ma OUTPUT SIGNAL /BACnet COMMUNICATION FROM THE BTU SYSTEM.
3. MAINTAIN UPSTREAM DISTANCES RECOMMENDED BY METER MANUFACTURER.
4. MAINTAIN DOWNSTREAM DISTANCES RECOMMENDED BY METER MANUFACTURER.
5. BTU METER WITH INTEGRAL LCD.
6. BATH-CALIBRATED AND MATCHED TEMPERATURE TRANSMITTERS.
7. HOT/CHILLED WATER COIL.
8. ENSURE CLEAR DISTANCE AVAILABLE FOR FUTURE REMOVAL SERVICE.
9. FULL PORT BALL WITH BUTT WELDED THREADED OUTLET CONNECTION.



CHILLED WATER COIL DETAIL — 21

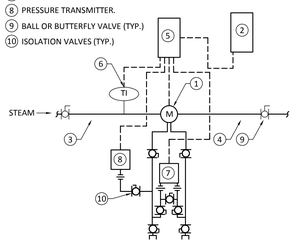
1. PIPE HANGER SHALL SUPPORT PIPING INDEPENDENT OF COIL (TYP.)
2. TEST PLUG (TYP.)
3. REDUCER, IF REQUIRED.
4. BALANCING DEVICE (TYP.)
5. CONTROL VALVE, COORIDINATE SIGNAL TYPE WITH DDC CONTROLS.
6. SHUT OFF VALVE (TYP.)
7. AIR VENT WHEN COIL IS NOT SELF-VENTING
8. DRAIN WHEN COIL IS NOT SELF DRAINING.



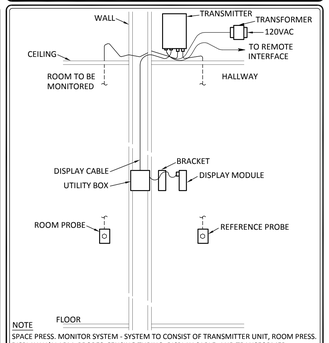
NOTE:
1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]Ø PIPE & SMALLER. TYPE "H-P" FOR 5" [125mm]Ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

STEAM FLOWMETER — 22

1. SPRING LOADED VARIABLE AREA FLOW METER
2. BUILDING AUTOMATION SYSTEM CONTROL MODULE IS PROVIDED WITH A 4-20ma OUTPUT SIGNAL FROM THE FLOW COMPUTER.
3. MAINTAIN UPSTREAM DISTANCES RECOMMENDED BY METER MANUFACTURER.
4. MAINTAIN DOWNSTREAM DISTANCES RECOMMENDED BY METER MANUFACTURER.
5. PRESSURE AND TEMPERATURE COMPENSATION FLOW COMPUTER.
6. TEMPERATURE TRANSMITTER.
7. DIFFERENTIAL PRESSURE TRANSMITTER.
8. PRESSURE TRANSMITTER.
9. BALL OR BUTTERFLY VALVE (TYP.)
10. ISOLATION VALVES (TYP.)



ROOM PRESSURE MONITORING — 23

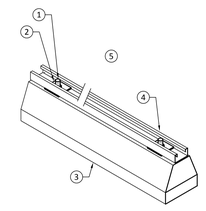


NOTE
SPACE PRESS. MONITOR SYSTEM - SYSTEM TO CONSIST OF TRANSMITTER UNIT, ROOM PRESS. DISPLAY W/ALARM, PROBES, SENSING TUBING, DISPLAY CABLE, AND TRANSFORMER.

SCALE: NONE

DUCT ROOF SUPPORT — 24

1. 3/8" MIN GALVANIZED THREADED ROD. TYP.
2. LOCKING SQUARE WASHER AND LOCKNUT
3. UV-INHIBITED POLYCARBONATE OR HIGH-DENSITY POLYPROPYLENE PLASTIC BLOCK, LENGTH AS REQUIRED.
4. INTEGRAL GALVANIZED LIPPED STEEL MOUNTING CHANNEL.
5. PROVIDE LIPPED STEEL FRAMING SYSTEM TO SUPPORT DUCT SYSTEM.



DESIGNER/ENGINEER IC
CAD OPERATOR IC
QAQC/CHECKER —

Revisions	Date
35% REVIEW	08/16/2010
85% REVIEW	11/03/2010
100% REVIEW	12/07/2010
BID DOCUMENTS	02/08/2011

CHAMPLIN ARCHITECTURE — THINK CREATE REALIZE
thinkchamplin.com
424 East Fourth Street
Cincinnati, OH 45202
T 513.241.4474 F 513.241.0081

Dynamix Engineering Ltd.
Facility Engineering Consultants
855 Grandview Avenue, 3rd Floor Columbus, Ohio 43215
Phone: (614)443-1178 · Fax: (614)443-1594 · Email: dynamix@dynamix-ltd.com
Comm. No.: 100031

STATE OF OHIO — MACE E-50556 — MONTGOMERY E-66852 — GRIFFIN E-57049 — REGISTERED PROFESSIONAL ENGINEERS
Professional Seal

Revised By:

Drawing Title: DETAILS
Approved: Project Engineer: Kevin Henderson
Approved: Engineer Service: Mike Rogala

Project Title: REPLACE AIR HANDLER UNITS (AHUs) 6, 7, 8 & 25
Building Number: 1 | Checked | Drawn: IC
Location: 3200 VINE STREET CINCINNATI, OH 45220

Date: 02-08-2011
Project No.: 539-11-108
Drawing No.: H1.2

VAMC, CINCINNATI
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978